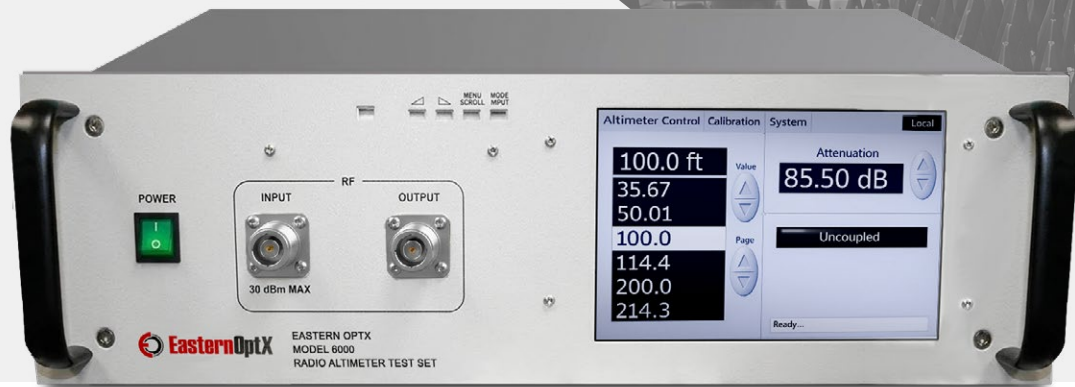


Series 1100 Radar Target Simulator is a true propagation path replicator, capable of producing a moving target with appropriate target cross-section, propagation loss, with a dynamic range of over 100 dB.

Product Applications

- Radar target simulation
- Signal processing
- Extension of radar range sites
- Phase noise measurements

Configure Now



Series 1100 Radar Target Simulator

Eastern OptX Series 1100 Radar Target Simulator is a true propagation path replicator. The Series 1100 receives the signal transmitted from a radar system and adds the round-trip propagation delay associated with the target distance. That signal is then output to the radar receiver. The radar I/O may be connected directly to the Series 1100 or received and trans-mitted with user specified antenna. For a moving target the system will add the appropriate Doppler shift associated with the target speed and Radar frequency. The Series 1100 is broad band with ranges up to 40 GHz with a dynamic range of over 100 dB.

The Series 1100 operates with pulsed, frequency hopping, or CW radars and with any encryption or modulation scheme. It is expandable in range and operation modes to accommodate new systems designs.

System Features

- Replicates target distance and speed
- Target distances from 1 to 100,000 m
- Doppler frequencies from 0 to 50 kHz (sub-Hz steps)
- Multipath (Clutter) Replicator Option
- Radar Target Cross Section Input
- Remote Control Interface
- Front Panel LCD Touch Screen Control
- External Delay Option for Future Expansion
- Propagation loss replication
- I/O Antenna Gain Input
- Longitude, Latitude, and Altitude Target Input Option
- Interferer Injection (Jammer)
- Target Movement Scenario Generator
- Programmable (SCPI Commands)
- Broadband performance (to 40 GHz)
- Synchronous and Free-Running Modes

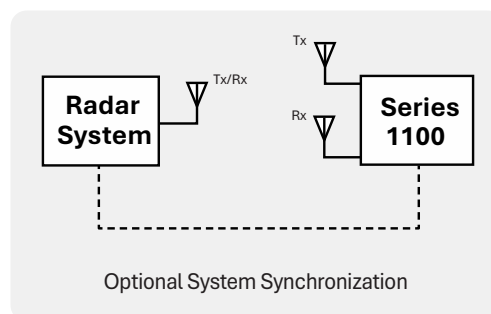


Series 1100 Radar Target Simulator



System Description

The block diagram below shows a typical Series 1100 System used with a common antenna radar system. The Series 1100 receives the signal transmitted from the radar, provides the necessary target delay, propagation loss, and Doppler, and then transmits back to the radar receiver. 60 dB of Input to Output Isolation is typical for most applications. Greater isolation is optional. Single antenna systems with octave band isolators are also available for specific radar bands. Direct RF connection to Radar and Series 1100 without external antenna is permissible and common. The System Operates with single antenna or phased array systems. Optional multiple target generation is available with single or multiple output emissions.



Standard System Features

- Replicates target distance and speed
- High Speed Target scenario generation
- Front Panel LCD Touch Screen Control with Intuitive graphical user interface
- Remote Control High Speed Serial Interface (100us update rate)
- Signal spectrum analysis
- Interferer Injection (Jammer)
- Programmable (SCPI Commands)
- Broadband performance (up to 2 GHz)
- Synchronous and Free-Running Modes

Options

- Multipath (Clutter)
- Interferer Generator/Injector
- Radar Cross-Section Input
- Multiple Target Output
- Input/Output Signal Measurement and Display
- Input/Output Antenna Probes

Series 3000 Specifications

Parameter	Specifications	Notes
Input/Output Isolation	60 dB	Minimum
Accuracy	1 %	Optional 0.5%
Repeatability	0.1%	At constant temperature
Minimum System Loss	0.5 dB/km	Typical, @ 5 GHz
VSWR	2 : 1	Maximum
Spurious Free Dynamic Range	100 dB/Hz ^{2/3}	Minimum
1 dB Input Compression	-15 dBm	Minimum
Noise Figure	25 dB (13 dB Typical)	Maximum (Lower NF optional)
Input/Output Impedance	50 Ω	Nominal
Dimensions	19" Rack Per EIA-310-D	2U-8U, 18" to 22" depending on design





Series 1100 Radar Target Simulator



Series 1100 Part Number Configurator

Custom Options: (1) Yes or (0) No

Built-In Self Test: (1) Yes or (0) No

External Delay: (1) Yes or (0) No

Travel Case: (1) Yes or (0) No

Bypass: (1) Yes or (0) None

RF Connectors (four ports)
RF In I/O and RF Out I/O: (N) N or (S) SMA

Part Number

1	1	3	2	0	-	0	1	S	1	-	1	0	1	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Minimum Target Distance (Step Size):
(01) .01 , (02) .05 , (10) .10

Minimum Target Distance (km): (20), (40), (50), (99)

Frequency Range:

(0) 0.01 to 3 GHz	(4) 0.1 to 13 GHz
(1) 0.1 to 4.5 GHz	(5) 0.1 to 15 GHz
(2) 0.1 to 6 GHz	(6) 0.1 to 18 GHz
(3) 0.1 to 11 GHz	(7) 1 to 40 GHz

Series:
(11) Radar Target Simulator

*Contact Eastern OptX for more information



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Bordentown, NJ 08505



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Series 1100 Radar Target Simulator



Delay Configuration Options

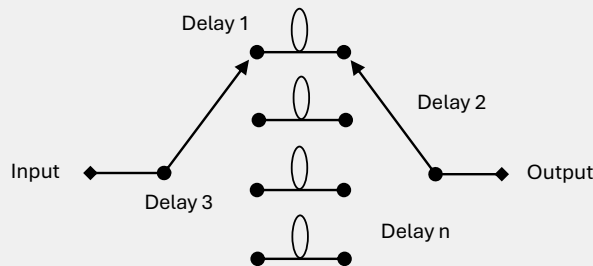
Progressive Delay

- Best solution for equally spaced delay step sizes
- Numerous possible delay combinations (Binary: 1, 2, 4, 8 etc.)
- More delays in a smaller package
- 1% overall accuracy

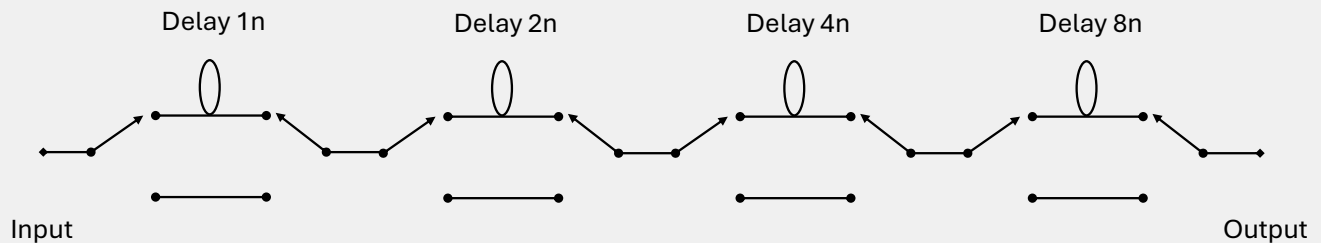
Discrete Delay

- Best solution for few delays or unequal delay steps sizes
- One to eight delays typical
- Better than 0.1% accuracy possible

Discrete Delay



Progressive Delay



Cell Delay Feature

- Up to eight (8) switchable delays can be configured separately
 - When ordering, let the Eastern OptX salesperson know the desired total round-trip delay for each cell (in μsec)
- Example: Delay 1 ($5 \mu\text{sec}$), Delay 2 ($8 \mu\text{sec}$)...

